

The Effects of Anti-Spoofing on Routine Global GPS Analysis

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Operational global GPS data processing at JPL with GIPSY/OASIS has been underway for data collected since June 21, 1992. However, anti-spoofing, the deliberate encryption of the P-code signal, has been operational nearly continuously since January 31, 1994. Various modifications in analysis strategies and hardware have been introduced in order to accommodate the encrypted raw data,

To validate the methods now being used in processing AS data, two data sets were compared. GPS data from a well-distributed network of Rogue and Turbo-Rogue ground receivers were analyzed during a period when AS was not in effect, and again for a time under continuous AS activation. Measures of quality in both cases include repeatabilities of satellite orbits and ground station baselines. The presentation will discuss the effect of AS on data processing time and on the quality of the estimated GPS and geodetic parameters. While introduction of AS has had a measurable effect on accuracy, a combination of adaptations in hardware, software, and estimation strategy have been explored to minimize the impact of AS on the use of GPS as a high-accuracy geodetic measurement system.

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